



MEMORANDUM FOR RECORD

Todd Gunther
Air Safety Investigator
Eastern Region

Date: June 21, 2017
Subject: N714DW Engine Examination
NTSB Accident Number: ERA17LA176

On June 15, 2017, the engine from N714DW was examined by Inspector Ken Reed from the Federal Aviation Administration, and Mr. John Kent from Continental Motors Inc.

The following information was provided by Inspector Reed, and Mr. Kent:

- The engine was attached to the fire wall, and all the accessories remained attached to the engine. The number four, cylinder barrel was separated at the mid-point and the number four piston was separated and impact damaged. The number four connecting rod was bent, and the number four piston pin was missing. The throttle, mixture, and carburetor heat controls were hooked up and were free to move.
- Intake and Exhaust: The intake and exhaust pipes were in place and had impact damage.
- Magnetos: Both magnetos were in place and not damaged. They both produced a spark at all terminals when hand rotated. Both magnetos were partly disassembled, and no internal damage was observed.
- Ignition Harness: The ignition harness was impact damaged in several places.
- Spark Plugs: The spark plugs were worn out normal when compared with the Champion Check-A-Plug comparison card. They had dark gray deposits in the electrode areas. The number four, cylinder spark plugs were filled with dirt in the electrode areas.
- Carburetor: The carburetor was in place and not damaged. The throttle, mixture, and carburetor heat were hooked up and free to move. The fuel screen was clean and clear. The float was not damaged and was free to move. The needle valve was clean and was moving freely.
- Oil Sump: The oil sump was in place and had impact damage on the quick drain. There was no oil in the sump.

- Accessory Case and Oil Pump: The accessory case was not damaged, and the oil pump was free to rotate and was coated with oil.
- Oil Filter: The oil filter was not damaged, and a few metal particles were noted on the filter.
- Cylinders: Cylinders one, two and three were in place and not damaged. Cylinder number four had the barrel separated at the mid-point and the base remained attached to the right crankcase half. The barrel had heavy scaring. The valves were in place and not damaged.
- Pistons: Pistons one, two, and three were not damaged, and the rings were in place and coated with oil. Piston number four had heavy impact damage and the rings were missing. Gouge marks were observed in the face of piston number four.
- Crankcase: The crankcase halves were not damaged. They were coated with oil on the interiors.
- Main Bearings: The main bearings were not damaged and were coated with oil.
- Crankshaft: The crankshaft was not damaged, and the connecting rods were free to rotate on the rod journals. The main journals were coated with oil.
- Connecting Rods: Connecting rods one, two, and three, were not damaged. Connecting Rod four was bent, and the piston pin was missing. The piston pin bushing was elongated and impact damaged. The rod cap bearings were not observed on connecting rods one, two, and three. The bearings on connecting rod four were in place and not damaged. They were coated with oil.
- Camshaft: The camshaft was in place and coated with oil. It was not damaged, except where it had been struck by the number four connecting rod.
- Valve Lifters: The valve lifters were in place and not damaged. They were coated with oil.
- Starter: The starter was in place and not damaged.
- Alternator: The alternator was in place and not damaged. The drive shaft was free to rotate.
- Vacuum Pump: The vacuum pump was impact damaged. The drive shaft would not rotate.
- Propeller: The propeller was attached to the crankshaft propeller flange, and the spinner had impact damage. Blade one was bent slightly toward the non-cambered side. Blade two was not damaged.